

# Heat Surveillance Summary - 1995

Note: These stages of heat advisories were modified in 1997.

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The Missouri Department of Health, in cooperation with local health departments, has conducted some form of heat surveillance since the great heat wave of 1980 when 295 Missourians died due to heat-related causes. Through public health education and news releases alerting Missourians to the possibility of heat-related illness, risk factors and prevention recommendations, the department works to increase the public consciousness regarding this environmental stress. Heat indices from five areas of Missouri are monitored on a daily basis during the summer months and appropriate heat crisis procedures implemented as appropriate.

The summer of 1995 started with gradually warming temperatures typical of summers in Missouri, but turned into one of the hottest summers experienced in the past several years. On July 10 a forecast of increased temperatures prompted the Department of Health to issue its annual news release urging awareness of heat-related illness. By July 11, temperatures in four areas of the state had increased dramatically and heat indices had risen from 92–96 to 105–112. The weather forecast called for even hotter temperatures, so the Department of Health issued the first statewide heat alert on July 12 indicating that "Missourians need to be aware that the high heat and humidity we are experiencing can be very dangerous, especially for older Missourians." In addition, Missourians were urged to use the state's toll-free adult abuse hotline to report any elderly persons suffering from the heat and needing assistance. Certain senior centers across the state were designated as cooling sites and operating hours were extended to help meet the demand. Heat indices peaked on July 13 with 121 in St. Louis, 112 in Kansas City, 116 in Columbia, 108 in Springfield and 106 in Cape Girardeau. On July 16, heat indices dropped below 105 in four areas of the state and the state-

### 1995 Stages of Heat Advisories

A **Heat Warning** is issued when a heat index of 105° is first reached (or predicted). The Department of Health urges personal caution as well as concern for others at high risk. In addition, monitoring of temperatures is intensified.

A **Heat Alert** will be announced when:

1. The afternoon heat index has been at least 105° for two days and
2. When weather forecasts call for continued high-stress conditions for at least 48 hours over a large proportion of the state.

During a **Heat Alert**, the Department of Health encourages local health departments to arrange for cooling shelters, and also encourages other community agencies to provide relief from the heat stress.

The Department of Health will recommend to the Governor that a statewide **Heat Emergency** be declared when:

1. Extensive areas of the state are experiencing high and sustained levels of heat stress (determined when the heat index reaches 105° for three days); and
2. Increased levels of heat-related illnesses or deaths are found in these areas; and
3. The National Weather Service predicts that hot and humid conditions are likely to continue for several days.

The **Heat Emergency** designation will be canceled when the heat index falls below 105° for 48 hours and the National Weather Service predicts a low probability that severe conditions will return within 48 to 72 hours.

wide heat alert was lifted on July 17. These six days of high heat indices accounted for 49 percent (403/819) of the reported heat-related illnesses and 61 percent (35/57) of the recorded heat-related deaths in 1995. See Figure 1.

Heat indices across the state reached 103–110 again on July 27. The Department of Health issued a second heat alert on July 28. Heat indices fluctuated around 100 for several days until the heat alert was lifted on August 1. During this heat wave, 42 heat-related illnesses and one heat-related death were reported.

Heat indices again increased to over 100 on August 7 with 101 in St. Louis, 110 in Kansas City, 107 in Columbia, 104 in

Springfield and 105 in Cape Girardeau. The Department of Health issued a third heat alert on August 8. Heat indices across the state remained around 105 or more for 14 days until August 22 when the heat alert was lifted. This 14-day heat wave accounted for 33 percent (273/819) of the reported heat-related illnesses and 23 percent (13/57) of the recorded heat-related deaths in 1995. See Figure 1.

It was noted that many more heat-related illnesses and deaths were reported during the 6-day heat wave of July 12–17 than the 14-day heat wave of August 8–22. We attribute this to the extremely high heat indices experienced across the state on July 12 and 13 in addition to the

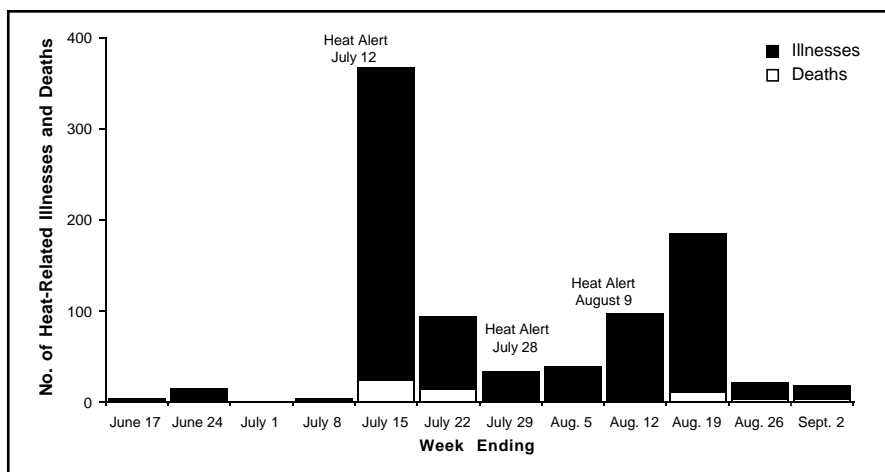


Figure 1. Reported heat-related illnesses and recorded heat-related deaths by week of occurrence, Missouri, Summer 1995.

**Table 1. Recorded Heat-Related Deaths, Missouri, 1994–95**

Age	1994	1995
under 5	0	0
5-14	0	0
15-24	0	0
25-34	0	0
35-44	0	8
45-54	1	3
55-64	2	4
65-74	3	15
75-84	2	17
85+	6	10
<b>Total</b>	<b>14</b>	<b>57</b>

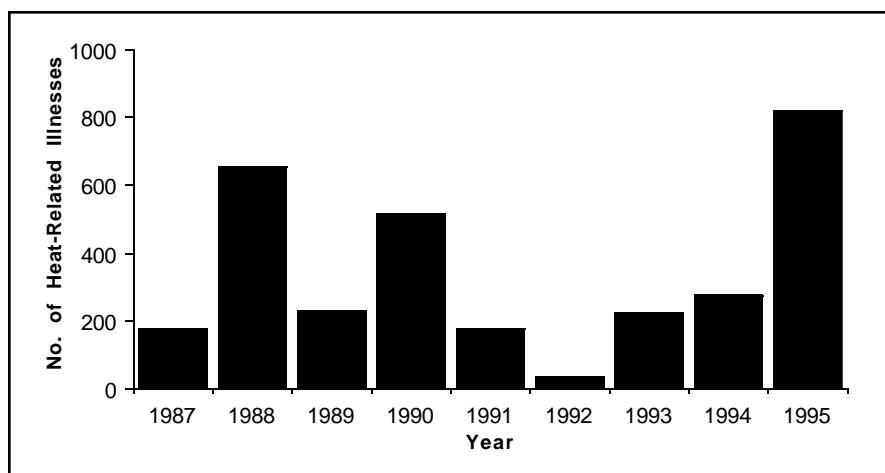


Figure 2. Reported heat-related illnesses by year, Missouri, 1980–95.

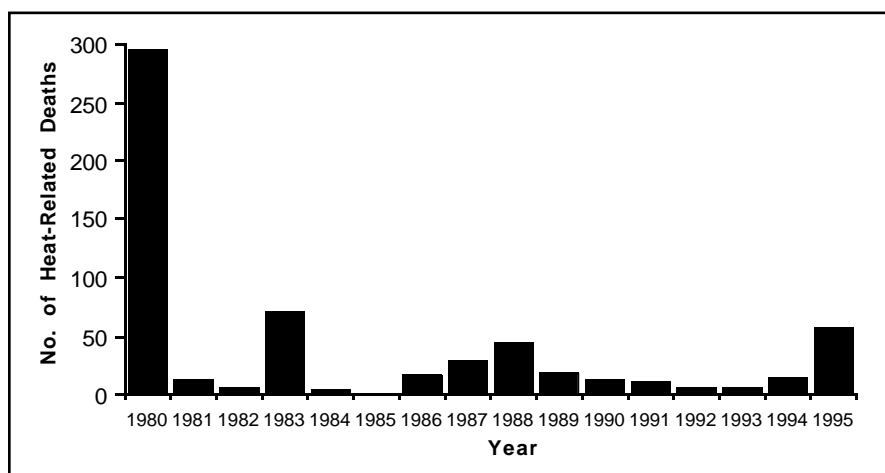


Figure 3. Recorded heat-related deaths by year, Missouri, 1980–95.

fact that the cooler than normal temperatures experienced in June and early July had not allowed Missourians to acclimatize to the heat or to develop appropriate concerns for warnings regarding prevention of heat-related illness.

Temperatures remained quite warm for the remainder of the summer, but heat indices were not simultaneously elevated statewide and no further heat alerts were warranted.

During the summer of 1995, three statewide heat alerts were issued, whereas only one statewide heat alert was issued in 1994 and one in 1993; no statewide heat alerts were issued in 1992 or 1991. There were 819 heat-related illnesses reported in 1995; the highest number reported since 1987 when the department first started recording heat-related illnesses. See Figure 2.

In 1995, there were 57 heat-related deaths recorded. This is the third highest number of heat-related deaths in the decades of the 1980s and 1990s. There were 295 deaths recorded in the heat wave of 1980 and 71 in 1983. See Figure 3. As in past summers, the majority of heat-related deaths occurred in individuals age 45 and older. See Table 1.

As in past years, the St. Louis area accounted for the majority of reported heat-related illnesses and recorded heat-related deaths in 1995, accounting for 439 (54%) of the heat-related illnesses and 33 (52%) of the heat-related deaths. The St. Louis public health authorities declared three heat warnings during the summer of 1995 on July 13, July 29 and August 8.

Hyperthermia became reportable by law in Missouri effective April 8, 1993. Hyperthermia is defined as a physician-diagnosed case of heat exhaustion or heat stroke. Heat exhaustion means a reaction to excessive heat marked by  
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## Directly Observed Therapy (DOT)

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completing treatment. Over the past few years, completion of therapy rates have increased in Missouri. In 1992, of all TB patients placed on therapy, 83.7 percent completed a full course of treatment within 12 months. In 1993, the percentage of those completing therapy jumped to 90.5 percent. The latest data (1994) shows that 91.6 percent of all TB cases completed therapy within 12 months. See Figure 3.

DOT is highly effective therapy. The success or failure to control the future spread of TB in Missouri will rest on how well the public and medical community is informed about the importance of DOT and the need for TB patients to complete their therapy.

### REFERENCES:

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2. Missouri Department of Health, Bureau of Tuberculosis Control. *TB Control Manual* 1996.

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prostration, weakness and collapse resulting from dehydration. Heat stroke is a severe illness caused by exposure to excessively high temperatures and is characterized by severe headache; high body temperature with a dry, hot skin; tachycardia; and in serious cases, collapse, coma or death.

Physicians, physician's assistants, nurses, hospitals, clinics or other private or public institutions providing care to any person diagnosed with or suspected of having hyperthermia should report it to their local health authority within 24 hours. Reports can be made by phone, facsimile or other means of rapid communication. For further information regarding reporting, call (800) 392-0272.

## Prevention of Perinatal HIV Transmission

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2. CDC. Recommendations of the U.S. Public Health Service Task Force on the use of zidovudine to reduce perinatal transmission of human immunodeficiency virus. *MMWR* 1994; 43(No. RR-11).
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5. Council on Scientific Affairs. Maternal HIV screening and treatment to reduce the risk of perinatal HIV transmission: an update report. *American Medical Association Council on Scientific Affairs Report* 6-A-95 1995.
6. Missouri Department of Health. Missouri Department of Health Policy to Reduce the Risk of Perinatal HIV Transmission in Missouri. *Missouri Epidemiologist* 1996;18(2):1-3.
7. Missouri Perinatal Association. Missouri Perinatal Association urges perinatal health providers to follow new guidelines for HIV counseling and testing of all pregnant women. *Missouri Epidemiologist* 1996;18(2):3.

## Survey of *Salmonella typhi* Isolates and Cases

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The Missouri Department of Health is participating in a one-year *Salmonella typhi* survey being conducted by the Centers for Disease Control and Prevention (CDC). The survey requests isolates of *Salmonella typhi* from newly diagnosed symptomatic cases be sent for antibiotic sensitivity testing to the CDC via the Missouri State Public Health Laboratory. The CDC is also requesting that each case of typhoid fever be asked to answer questions from a standardized questionnaire administered by county or state public health staff.

The CDC survey is being conducted from June 1, 1996 through May 31, 1997. The primary purpose of the survey is to assess antimicrobial resistance among *Salmonella typhi* isolates in the United States. There are two objectives: 1) to determine the state-specific prevalence of antimicrobial resistance among *Salmonella typhi* isolates submitted to state and territorial public health laboratories during a one year period and 2) to determine the epidemiologic characteristics and clinical outcomes associated

with antimicrobial-resistant *Salmonella typhi* infections compared with antimicrobial-susceptible infections.

For the ten-year period, 1985-94, complete susceptibility data are available from CDC for only three antimicrobial agents (ampicillin, chloramphenicol and trimetho-prim-sulfamethoxazole) and only 330 (13%) *S. typhi* isolates. Isolates from 1990-94 were more likely than isolates from 1985-89 to be resistant to any of one of these antimicrobial agents (30% vs. 12%,  $p < 0.0001$ ) and to be resistant to all three agents (20 [12%] of 168 vs. 1 [0.6%] of 162,  $p < 0.0001$ ).

Over the past 15 years, cases of typhoid fever reported in Missouri have ranged from one to ten cases with a mean of 4.5 and a median of four per year.

If you have questions regarding the submission of an isolate to the Missouri State Public Health Laboratory, please call Barbara Owen at (573) 751-0633. Questions pertaining to epidemiology or the questionnaire should be directed to Michael Fobbs, Bureau of Communicable Disease Control at (573) 751-6113.